

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CHARACTERISTICS AND POTENTIALITIES OF A DISCHARGE CONDENSATION
CHAMBER -U-
AUTHOR--(03)-MANDZHAYIDZE, Z.SH., RDYNISHVILI, V.N., DZHAVRISHVILI, A.K.
COUNTRY OF INFO--USSR
SOURCE--PRIB. TEKHN. EKSP. 1970, 1, 46-51
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE DETECTOR, DISCHARGE CHAMBER, GAS IONIZATION, VAPOR
CONDENSATION, PARTICLE TRAJECTORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/1481 STEP NO--UR/0120/70/001/000/0046/0051
CIRC ACCESSION NO--AP0106237
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106237

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW DETECTOR OF ELEMENTARY PARTICLES IS DESCRIBED. IT IS A DISCHARGE CONDENSATION CHAMBER BASED ON 2 STAGE DETECTION OF PARTICLES WITH CONSECUTIVE USE OF THE DISCHARGE AND CONDENSATION METHODS OF REGISTRATION. IN THE 1ST STAGE THE IONIZATION E GENERATED BY THE CHARGED PARTICLES IN THE WORKING GAS MIXT. WITH THE CONDENSATE ARE ACCELERATED IN THE PULSED ELEC. FIELD AND BECOME THE INITIATORS OF THE GAS DISCHARGE. THE AMPLITUDE AND PULSE LENGTH ARE SELECTED TO INTERRUPT THE DISCHARGE AT THE STAGE OF TOWNSEND SHOWERS. IN THE 2ND STAGE THE CONDENSATION OF THE SUPERSATD. VAPOR ON IONS ALONG THE TRAJECTORY OF A PARTICLE TAKES PLACE. THE DEGREE OF SUPERSATN. IS PICKED A LOT LOWER THAN THE THRESHOLD NEEDED FOR CONDENSATION ON DISCRETE IONS BUT ADEQUATE FOR CONDENSATION ON DENSE ACCUMULATIONS OF IONS SUCH AS A TRACK AFTER THE GASEOUS AMPLIFICATION IN STAGE 1. THE CHAMBER HAS A HIGH TIME RESOLN., A LONG MEMORY OF DISCRETE PHENOMENA, FULL ISOTROPY, GOOD SPATIAL RESOLN., TRACK BRIGHTENERS, AND POSSIBILITY OF USING MANY GASES, HE AND H INCLUDED.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EVALUATION OF SOME ROENTGENOLOGICAL METHODS OF EXAMINATION OF THE
GALL BLADDER IN NONCALCULOUS CHOLECYSTITIS -U-
AUTHOR--MANDZYUK, B.N.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 127-130
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RADIOLOGY, GALLBLADDER, DIAGNOSTIC METHOD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1915 STEP NO--UR/0475/70/000/004/0127/0130
CIRC ACCESSION NO--AP0129264
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129264

ABSTRACT/EXTRACT--(U) GP-D- ABSTRACT. ANALYZING THE VALUE OF ORAL
CHOLECYSTOGRAPHY, CHOLECYSTOANGIOGRAPHY AND INTRAVENOUS CHOLEGRAPHY AND
SUGGESTING THAT THE MAIN CRITERIA FOR ROENTGENOLOGICAL DIAGNOSIS OF
NONCALCULOUS CHOLECSTITIS ARE CHANGES OF THE CONCENTRATION AND
CONTRACTILE FUNCTIONS OF THE GALLBLADDER, THE AUTHOR INDICATES THAT IN
DETERMINATION OF THE CONTRACTILE CAPACITY NONE OF THESE METHODS HAS
ADVANTAGES. INTRAVENOUS CHOLEGRAPHY ENABLES TO DIAGNOSE EARLY STAGES OF
THE PATHOLOGICAL PROCESS AND IS THEREFORE PREFERABLE. FACILITY:
RENTGENOLOGICHESKOYE OTDELENIYE, UZHGORODSKOY OBLASTNOY KLINICHESKOY
BOL'NITSY.

UNCLASSIFIED

USSR

UDC: 621.777:546.621

PETUKHOV, V. I., ABRAMOV, O. V., ZUBKO, A. M. and ~~MANEGIN, YU. V.~~

"Extrusion of Aluminum in an Ultrasonic Field"

Moscow, Kuznechno-shtampovoye proizvodstvo, No 3, Mar 72, pp 5-7

Abstract: Discussed are various techniques of applying ultrasonic vibrations in the process of direct and indirect extrusion. The test materials included cold-extruded aluminum and aluminum extruded with the application of ultrasonic vibrations. A coordinate grid was used to evaluate the metal flow. The ultrasonic vibration technique was most effective in direct extrusion when applied to the deformation area through both the male and female dies simultaneously and for indirect extrusion -- through the male die and deflector simultaneously. Increasing the shift amplitude of elastic vibrations results in a drop of the extrusion force and the degree of nonuniform deformation of the metal. Increasing the extrusion rate and the length of the formable slab decreases the effect of ultrasonic vibrations on the power parameters of extrusion. The reduced degree of deformation force under elastic vibrations is unaffected by changes in

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USSR

PETUKHOV, V. I., et al, Kuznechno-shtampovochnoye proizvodstvo, No 3,
Mar 72, pp 5-7

the amount of deformation (from 26 to 75%), the die angle (from 60 to 120°)
and the lubricant's viscosity. A table reflects the effect of technological
parameters on the process of aluminum extrusion. (5 illustrations,
1 table).

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Forming

USSR

UDC 669.715:621.77

ABRAMOV, O. V., PETUKHOV, V. I. and MANEGIN, YIL. Y.

"Application of Ultrasonic Vibrations to Press Forming of Metals"

Moscow, Izvetnyye metally, No 2, Feb 72, pp 63-65

Abstract: Discussed in this study are various systems of applying ultrasonic vibrations to the area of deformation and the effect of vibration amplitude on both the power parameters and the degree of nonuniformity of metal deformation in either direct or indirect extrusion. The results of the study indicate that ultrasonic treatment was most effective in direct extrusion when applied to the plastic deformation zone through the die and in indirect extrusion -- when applied through the ram. An increase in the amplitude of elastic vibration displacement decreases both the press forming force and the degree of nonuniformity in metal deformation. The effect of ultrasound on the power parameters of press forming may be related to the decrease in the coefficient of friction in the deformation area and to the increase of plasticity in the formable metal. The ultrasonic vibration equipment involved in the study is detailed. (3 illustrations, 1 table, 4 bibliographic references).

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USSR

UDC 620.17:669.27'71'295'296

KLYPIN, B. A., MANEGIN, Yu. V., MARKIN, V. G., and FEDOROV, Yu. K., Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Technological and Mechanical Properties of Some Tungsten Alloys"

Moscow, Metallovedeniye, No 6, 1971, pp 44-47

Abstract: Mechanical and technological properties of tungsten alloys containing W-0.5% Ti, W-10% Mo-0.5% Ti, and W-0.5% Ti-0.1% Zr, vacuum smelted in an arc furnace with consumable electrode, were investigated on pressed, forged, and rolled bars. Highest quality bars were obtained by use of dies covered with Al_2O_3 and by a drawing rate of not less than 4. Introduction of 10% Mo into the alloy W-0.5% Ti at temperatures up to 2000°C increases its strength and improves its macrostructure and the quality of the ingot. Introduction of 0.1% Zr into the alloy W-0.5% Ti sharply increases the recrystallization temperature and the hardness of the alloy at 1500-1700°C which hinders its deformation. Effects of drawing (1600-1640°C) on the specific pressure and of the temperature on mechanical properties and the dependence of hardness on the annealing temperature are shown. Four figures, six bibliographic references.

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USSR

RAYEVSKIY, A. V., MANELIS, G. B., NADCORNIY, E. M., and IVANOV, A. P., Institute of Chemical Physics, Academy of Sciences USSR, Moscow, and Institute of Solid State Physics, Academy of Sciences USSR, Chernogolovka, Moscow Oblast

"Whisker Crystals of Ammonium Perchlorate. Their Mechanical Properties"

Moscow, Doklady Akademii Nauk SSSR, Vol. 209, No 1, 1973, pp 157-159

Abstract: In earlier work by Rayevskiy, Manelis, et al (DAN SSSR, 151, No 4, 886, 1963; 160, No 5, 1136, 1965) the assumption was made that dislocations play a significant role in the thermal decomposition of orthorhombic crystals of NH_4ClO_4 . In the present work, whisker crystals of NH_4ClO_4 were grown by utilizing the capacity of moist NH_4ClO_4 to creep during crystallization. Into a layer of moist crystals of NH_4ClO_4 placed in a beaker the open end of a glass cylinder closed on top was inserted. On the outer surface of the cylinder lengthwise rough strips with a width of 5 mm were ground to facilitate creeping. Outside of the beaker an open glass cylinder was placed to produce a humidity gradient. The arrangement was kept for several days at room temperature in a chamber with a constant humidity. Whisker crystals grew on the outer surface of the closed cylinder. The whiskers had a circular cross section, a tubular
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USSR

RAYEVSKIY, A. V., et al., Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 157-159

shape, a wall thickness of 1.5-10 μ , and an outer radius up to several tens of microns. The length of the whiskers was ~ 50 mm. The whisker crystals had a tensile strength up to a level above 13 kg/mm² vs. ~ 0.5 kg/mm² for ordinary NH₄ClO₄ crystals and a higher elastic deformation up to the fracture point

($\sim 0.2-1\%$) than that of the latter. The tensile strength decreased with an increasing wall thickness, but did not depend on the outer radius. X-Ray diffraction measurements carried out by Yu. A. Sokolov showed that the whiskers grew in the direction of the z axis. Whisker crystals with similar properties were grown from NH₄ClO₄ containing ~ 1 mole % KPMO₄. The mechanical properties of the whisker crystals indicated that they were practically free of dislocations. (Submitted by Academician N. N. Semenov, 31 Jul 72).

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USSR

UDC 542.92:547.414.8

DUBIKHIN, V. V., NAZIN, G. M., and MANELIS, G. B., Institute of Chemical Physics, Academy of Sciences USSR

"Thermal Decomposition of Chloropicrin"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1338-1339

Abstract: The article describes results of a detailed study of the effect of initial pressure and inhibitors on the decomposition of chloropicrin, and also determines the rate constant. It is shown that the decomposition of chloropicrin in the gas phase (50-400 torr) depends on the pressure and the addition of inhibitors (toluene, formaldehyde).

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Reaction Kinetics

UDC 541.124/.123

USSR

KUBTISOV, YU. I., RAYZENSKIY, A. V., MAJELIS, G. E., Chernogolovka Branch,
Institute of Chemical Physics, Academy of Sciences USSR

"Kinetics of Thermal Decomposition of the Mixture of Ammonium and Guanidinium
Perchlorates"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 1, Jan 1970, pp 47-51

Translation: A diagram of fusibility was obtained and a study was made of the kinetics of thermal decomposition of the mixture of ammonium and guanidinium perchlorates. It was shown that the decomposition of ammonium perchlorate in the solid phase takes place below the temperature of phase transition. In the presence of liquid phase there is no drastic slowing down of the reaction after a 30% transformation. During phase transition, the liquid percolates the crystals of NH_4ClO_4 . Thereafter, the course of the reaction in the solid phase is inhibited due to dissolution of the potential centers of the initial reaction. The initial rate of decomposition of the liquid mixture of ammonium and guanidinium perchlorates is low. Acceleration of the reaction is related to the accumulation in the system of gaseous products of the reaction, which act as catalysts. The authors thank K. V. Titova for submitting the guanidinium perchlorate specimen.

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1/2 021
UNCLASSIFIED
PROCESSING DATE--23OCT70
TITLE--KINETICS OF THE THERMAL DECOMPOSITION OF A MIXTURE OF AMMONIUM AND
GUANIDINIUM PERCHLORATES -U-
AUTHOR--(03)-RUBTSOV, YU.I., RAEVSKIY, A.V., MANELIS, G.B.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 47-51
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PERCHLORATE, THERMAL DECOMPOSITION, AMMONIUM COMPOUND, CRYSTAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1889
STEP NO--UR/0076/70/044/001/0047/0051
CIRC ACCESSION NO--AP0118851
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

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CIRC ACCESSION NO--AP0118851

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE DEPENDENCE OF THE M.P. UPON
COMPN. WAS EXAMD. FOR A MIXT. OF AMMONIUM AND GUANIDINIUM PERCHLORATES.
THE THERMAL DECOMP. OF NH SUB4 ClO SUB4 (I) TAKES PLACE BELOW THE TEMP
OF THE PHASE CHANGE I.E. IN THE SOLID STATE. IN THE PRESENCE OF THE
LIQ. PHASE, THE DECOMP. REACTION IS RETARDED. THE LIQ. PENETRATES INTO
THE CRYSTALS OF (I) DISSOLVING POSSIBLE ACTIVE CENTERS. THE INITIAL
DECOMP. RATE OF THE LIQ. MIXT. OF PERCHLORATES IS LOW AND THE REACTION
HAS AN AUTOCATALYTIC CHARACTER.
CHERNOGOLOVKA, USSR.

FACILITY: INST. KHIM. FIZ.,

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--KINETICS OF THE THERMAL DECOMPOSITION OF HYDRAZONIUM NITRATE -U-
AUTHOR--(02)-RUBTSOV, YU.I., MANELIS, G.B. 
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44 (2), 396-400
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMAL DECOMPOSITION, NITRATE, CHEMICAL KINETICS, HYDRAZONE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1890 STEP NO--UR/0076/70/044/002/0396/0400
CIRC ACCESSION NO--AP0118852
UNCLASSIFIED

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CIRC ACCESSION NO--AP0118852
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. THE RATES OF THERMAL DECOMP. OF N
SUB2 H SUB5 NO SUB3 (I) WERE MEASURED AT 194-254 DEGREES IN A
MICROCALORIMETER. THE DECOMP. WAS SELF ACCELERATED AND FOLLOWED 2ND
ORDER KINETICS. EXPTS. WITH VARIOUS RATIOS OF I TO AMPUL VOL.
INDICATED THAT THE DECOMP. INVOLVED THE EQUIL. DISSOCN. OF INFORMATION
SHOWN ON MICROFICHE. FACILITY: FILIAL INST. KHIM. FIZ.,
CHERNOGOLOVKA, USSR.

UNCLASSIFIED

Optics & Spectroscopy

53:371.3

YAVORSKIY, B. M., MOLOTKOV, N. YA

"Some Demonstrations in Centimeter-Wave Optics"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 2, February 1971,
pp 138-140

Abstract: Experimental procedures are presented for demonstrations in centimeter-wave optics including 1) double refraction, 2) the operation of a polarizer and an analyzer, and 3) transmission of a plane wave through a dielectric interface. Radio-physical models of artificial dielectrics are used in the experiments. In the experiment in double refraction, the length of certain dipoles of the proposed model $l_x = 18$ mm was greater than the half wave-length of the emission used ($\lambda = 32$ mm),^x and the length of others $l_y = 14$ mm was less than $\lambda/2$. Thus, the natural frequencies of the dipoles were on both sides of the resonance frequency. This choice of dipole lengths made it possible to create an artificial dielectric with sharp anisotropy and to obtain circular polarization. Crossed dipoles forming a rectangular lattice were used as the polarizer and analyzer model. Artificial dielectrics consisting of two planes and six planes were used for the interface experiment.

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"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201920010-4

state of the vessels. Correlating the morphological and clinical data the achieved results permit to allocate a special role to the vascular disorders (an increased vascular permeability) in the pathogenesis of the above-mentioned diseases.

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Acc. Nr.:

AP0028456

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,
Vol 70, Nr 1, pp 32-36

CONCERNING SOME PROBLEMS OF THE PATHOGENESIS
OF PRIMARY INFECTIOUS ENCEPHALOMYELOPOLYRADICULONEURITIS

Manelis, Z. S.

The paper deals with the results of a comprehensive study of the functional state of

USSR

YEPIFANOV, A. S. ~~MANENKOV, A. A.~~; Physics Institute imeni P. N. Lebedev,
Academy of Sciences USSR

"Toward a Theory of Relaxation in Nonhomogeneously Broadened EPR Lines"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 5, May 71,
pp 1804-1813

Abstract: A detailed study is presented of relaxation in nonhomogeneously broadened lines taking into consideration the change in the average energy of dipole-dipole interactions and the spatial distribution of spins. The spin packet model of Portis [Phys. Rev. 104, 584, 1956] is used. The quantum-statistical method is used to obtain the relaxation curves as a function of the form of the probability density function of the cross-relaxation transitions in terms of the frequency. It is shown that for the case of considerably inhomogeneous broadening, the change in the average energy of dipole-dipole interactions does not introduce any changes into the technique of constructing probability density functions of cross-relaxation transition and does not effect the form of the relaxation curves.

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1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FREEZING OF CROSS RELAXATION IN HETEROGENEOUSLY BROADENED EPR LINES
-U-
AUTHOR--(02)--CARASELIYA, D.M., MANENKOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(7), 337-9
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--EPR SPECTRUM, LINE BROADENING, SPIN LATTICE RELAXATION,
FLUORIDE MINERAL, CRYOGENIC PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--2000/1160 STEP NO--UR/0386/70/011/007/0337/0339
CIRC ACCESSION NO--AP0124815
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PROCESSING DATE--300CT70

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CIRC ACCESSION NO--AP0124815
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A METHOD IS PROPOSED FOR DETN. OF
SPIN LATTICE RELAXATION TIME WHERE THE EFFECT OF CROSS RELAXATION WITHIN
THE EPR LINE IS EXCLUDED. THE "FREEZING" EFFECT WAS ACHIEVED BY RAPID
SWEEPING OF THE LINE. THE LINE WAS AT THIS MOMENT HOMOGENEOUSLY SATD.
AND REDN. OF ANY PART OF THIS LINE TOOK PLACE EXPONENTIALLY ONLY AS A
RESULT OF LATTICE RELAXATION. OSCILLOGRAPHS OF THE RELAXATION CURVES
OBTAINED WITH SAMPLES OF ND PRIME3 POSITIVE IN FLUOROAPATITE AT
4.2DEGREEK ARE GIVEN AND RESULTS ARE COMPARED WITH THOSE OBTAINED BY
THE CONVENTIONAL METHOD.

MOSCOW, USSR.

FACILITY: FIZ. INST. IM. LEBEDEV, A

UNCLASSIFIED

USSR

MANENKOV, A. A., DARASELIYA, D. M., YEPIFANOV, A. S. (Lebedev Physics Institute, USSR Academy of Sciences)

"Relaxation in Nonuniformly Broadened EPR Lines"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, August 1970, pp 445-456

Abstract: Relaxation processes in nonuniformly broadened EPR lines are studied theoretically and experimentally. A theory is developed for strong nonuniform broadening, and allowance is made for cross-relaxation processes within the line. The shapes of the relaxation curves are assessed by the usual method of pulsed saturation as well as for the case of quenching of cross-relaxation in the line. Results of an experimental investigation of EPR lines of Nd^{3+} in $\text{Ca}_2(\text{PO}_4)_3\text{F}$ are presented. The variation with temperature of the relaxation rate under conditions of quenched cross-relaxation is studied. A method is developed for determining the probability density function for cross-relaxation transitions $w(x)$, where x is the frequency $1/2$

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USSR

MANENKOV, A. A., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, August 1970, pp 445-456

detuning. The function for the EPR Nd^{3+} line of $\text{Ca}_5(\text{PO}_4)_3\text{F}$ is determined.

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Acc. Nr:

AP0043592

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 796-799

PARAMAGNETIC RELAXATION PROCESSES
IN $\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}:\text{Fe}^{3+}$ SINGLE CRYSTALS
AT HELIUM TEMPERATURES

A. A. Mansarov, Milyayev, V. A.

Spin-lattice relaxation, spin-spin cross relaxation and the discrete saturation effect are experimentally studied at helium temperatures in aluminium nitrate single crystals containing an iron paramagnetic ion impurity. The dependence of the relaxation processes and discrete saturation effect on Fe^{3+} ion concentration is studied in a broad range of concentrations.

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Acc. Nr: AP0038024

Ref. Code: UR 0055

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 1, pp 31-36

**SURFACE DESTRUCTION OF RUBY CRYSTALS
BY LASER RADIATION**

Yu. K. Danilevskiy, A. A. Manenkov, A. M. Prokhorov,
V. Ya. Pavlov, V. M. Pavlov

Processes of surface destruction of ruby crystals under the action of radiation from a ruby laser are investigated experimentally. The dependence of the threshold destruction power on duration of laser pulses ranging from $3 \cdot 10^{-7}$ to $4 \cdot 10^{-6}$ sec and the effect of structure-optical properties of the surfaces on destruction threshold are studied. A theory of thermal destruction on absorbing surface defects is developed. An expression is obtained for the dependence of the destruction power on duration of the light pulses. Good agreement is found between the experimental data and the theory of thermal destruction proposed.

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MANENKOV, A. A. and MILYAYEV, V. A., Physics Institute imeni P. N. Lebedev,
Academy of Sciences USSR

"Paramagnetic Relaxation Processes in $\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}:\text{Fe}^{3+}$ Single Crystals at Helium Temperatures"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 58, No. 3,
Mar 70, pp 796-799

Abstract: Spin-lattice relaxation, spin-spin cross relaxation, and the discrete saturation effect in aluminum nitrate single crystals with an iron paramagnetic ion impurity were studied experimentally at helium temperatures. It was noted that such crystals were used by Hughes and Richards as material for a laser operating in a null magnetic field; the working frequency of the laser was 9.35 GHz with a pumping frequency of 23.7 GHz. This laser was shown to have a good frequency standard and to be capable of giving several hundred microwatts with fairly high stability. The experiment was conducted since there is no data in the literature on the electron paramagnetic resonance spectrum and relaxation in this material. Relaxation processes and the discrete saturation effect were measured as functions of Fe^{3+} ion concentration over a concentration

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USSR

MANENKOV, A. A. and MILYAYEV, V. A., Zhurnal eksperimental'noy i teoreticheskoy fiziki, Vol. 58, No. 3, Mar 70, pp 796-799

range of $5 \cdot 10^{-4}$ to $5 \cdot 10^{-2}$. It was found that the spin-lattice relaxation time is very strongly dependent on the concentration of Fe^{3+} ions. The discrete saturation effect, which is associated with the superhyperfine interaction of Fe^{3+} ions with paramagnetic nuclei, is critically dependent on concentration and appears only at small paramagnetic ion concentrations when electron dipole interactions become negligible.

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UDO 621.391.833.019.3

USSR

DAVYDOV, A.M., ~~MANENKOV, V.I.~~

"Concerning The Noise Immunity Of Spaced Reception In A Two-Beam Channel"

Radiotekhnika, Vol 27, No 5, May 1972, pp 82-84

Abstract: The transmission is considered of binary communications in a two-beam channel with the aid of orthogonal signals which have an identical envelope $\rho(t)$ of autocorrelation functions. New relations are obtained for computation of the probability of error with a random change of the time lag of the beams. It is found that with a given correlation coefficient R , the noise immunity in a two-dimensional Rayleigh channel is higher than in a two-beam Rayleigh channel. The authors thank G. Ya. Lyakhovetskiy for critical comments which were taken into account in the work. 2 ill. 5 ref. Received by editors, 20 Oct 1970.

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USSR

ZUSMAN, M. I.; MANESHIN, N. K.; PARYGIN, V. N. (Chair of the Physics of Oscillations)

"Modulation of $10\text{-}\mu$ Radiation by Means of Ultrasound"

Moscow, Vestnik Moskovskogo Universiteta: Fizika, Astronomiya; March-April, 1972; pp 190-4

ABSTRACT: The authors present results of an experimental study of a modulator of $10.6\text{-}\mu$ radiation using the photoelastic effect in a germanium crystal. The effective percentage modulation at an ultrasonic frequency of 13 Mc and equal to 20% for double refraction and 70% for diffraction, with a power consumption of 2.2 watts by a piezoelectric driver, was obtained. The modulation band comprised 1%.

The article includes three equations and three figures. Figure 1 shows (a) the equivalent circuit of a piezoelectric converter and (b) the schematic diagram of matching a piezoelectric converter with an electric oscillator. Figure 2 shows the theoretical and experimental dependence of the effectiveness of a double refraction modulator on the voltage fed to a piezoelectric converter. Figure 3 shows the theoretical and experimental dependence of the effectiveness of a diffraction modulator on the voltage fed to a piezoelectric converter.

1/1 There are two bibliographic references.

USSR

UDC 632.95

STANOVA, L., KHLEBAROV, N., and MANEVA, M., Bulgaria

"Biological Activity of Dibromfos"

Moscow, Khimiya v Sel'skom Khozyaystne, No 7, Vol 11, 1973, pp 46-48

Abstract: Solutions of different concentrations of dibromofos (0,0-dimethyl-0-(1,2-dibromo-2,2-dichloroethylphosphate) were tested on fruiting molds, leaf blotch, and other diseases attacking feed grains. Fungicidal activity was determined by the radius around the spot of dibromofos in a petri dish which was sterile. Thirteen different species of fungi were tested using concentrations of 0.02 to 0.2% solutions. Radii of the sterile zones ranged from 0 to 24 mm for the former and 26-31 mm for the concentrated solution. Bacterial activity was determined in a similar way for 11 species using concentrations ranging from 0.02 to 0.5%. The sterile zones for this study ranged from 13 to 26 mm for the least and 45 to 56 mm for the most concentrated solutions. It was demonstrated that dibromofos may be used as an insecticide, a fungicide, or a bactericide.

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USSR

ZHANE, L.N., MANEVICH, A.E. and RIVKIN, S.S.

"Ship Gyroscope Errors in Waves"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 2,
Mar-Apr 71, pp 142-146

Abstract: Probabilities were defined for characteristics of the orbital motion of the center of gravity of a ship and the necessary transfer functions for computing dynamic errors in gyroscopic devices. Typical wave conditions were used to obtain numerical values for the acceleration spectrum parameters. The wave-to-ship relation was treated as a dynamic statistical random signal moving across a dynamic system. Relations were established for wave spectral density of acceleration, ship transfer function, ordinate dispersion of wave profile, horizontal motion of ship, vertical deviation angle of pendulum, and movement of pendulum support from ship's center of gravity. Computations were made for error caused by horizontal displacement of the ship's center of gravity. The conclusions were that dynamic errors caused by orbital motion and by pitch and roll motions are in the same order of magnitude. Therefore it is necessary to consider the effect not only of ship's pitch and roll motion but also of the orbital motion of ship's center of gravity. This is necessary when calculating errors of gyroscopic devices affected by wave motions.

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USSR

UDC 624.074.4

MANEVICH, A. I. and KAGANOV, M. Ye., Dnepropetrovsk Department, Institute of Mechanics, Academy of Sciences, Ukrainian SSR

"Stability and Weight Optimization of Reinforced Spherical Shells During External Pressure"

Kiev, Prikladnaya Mekhanika, Vol 9, No 1, Jan 73, pp 20-26

Abstract: The problem of the stability and weight optimization of spherical shells, reinforced by square wafers, during external pressure is solved on the basis of the linear theory of structurally orthotropic shells, with account taken of rib eccentricity. It is shown that the effect of rib eccentricity is, within wide limits, independent of the sphere radius. The problem of determination of the optimal reinforcement parameters is solved. Analysis shows that supplementary restrictions upon geometric parameters or stresses can decrease considerably the efficiency of wafer-type shells, as well as the advantage of external reinforcement in comparison to internal reinforcement.

1/1

USSR

UDC 539.3:534.1

MANEVICH, A. I., DEMESHKO, M. F., KRASOVSKIY, V. L., KUCHERENKO, V. M.

"Experimental Study of the Stability of Longitudinally Fastened Cylindrical Shells Under Axial Compression"

V sb. Raschet prostranstv. konstruktsiy (Calculation of Three-Dimensional Structures -- Collection of Works), No. 14, Moscow, Stroyizdat, 1971, pp 87-102 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V319)

Translation: Tests of 48 cylindrical shell models are reported. The shells were reinforced with stringers of open profile and the purpose of the test was to study the effect of the positioning of the ribs on the stability under axial compression. The shells and stringers were made of Kh18N9-n steel. In the case of shells with high critical stress (small lengths, "strong" ribs) there is noted a considerable deviation from structural-orthotropic theory especially under external positioning of the ribs (up to 40-50%). The effect of the sign of the eccentricity is emphasized, however, quantitatively considerably less than the theoretical effect. It was observed that with internal stringers the deformation curve may have an

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USSR

MANEVICH, A. I., et al, Raschet prostranstv. konstruktsiy, No. 14, Moscow, Stroyizdat, 1971, pp 87-102

ascending character after the bifurcation point. The varying nature of the loss in stability of shells of both types is noted. Analysis of the nature of the bulging and tensometric measurements showed that the deviation between theory and experiment in this range of parameters is basically associated with the characteristics of the mechanism for the loss of stability of shells with ribs of open profile not described by existing theories. To reform the theory it is necessary to take into account the mutual relationship between the bulging of elements of the shells and the entire shell. A computation scheme should include the possibility of bending of the walls of the ribs in the plane of least rigidity and also account for the redistribution of stresses in the skin and stringers after local bulging of the skin. Author's abstract.

USSR

GRISHCHAK, V. Z., MANEVICH, A. I.

"Influence of Rib Rigidity for Bending From a Plane on Stability of a Reinforced Cylindrical Shell"

Gidroyaeromekh. i Teoriya Uprugosti. Mezhvuz. Nauch. Sb. [Hydromechanics, Aeromechanics and the Theory of Elasticity. Interdepartmental Scientific Collection], 1972, No 14, pp 121-130, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V316, by the author's).

Translation: Based on the equations of the semi-momentless theory of shells, a general method is presented for solution of the problem of stability of a reinforced shell considering the rigidity of ribs when they are bent out of plane. In the calculation plan, the ribs are looked upon as discretely placed elements, stringers are considered by introducing adjusted rigidities. The primary quantitative dependences and estimates are produced using the examples of a freely supported shell with one rib and a shell with an elastic rib at its edge. It is shown that the ordinary assumption of zero rigidity of ribs for bending out of plane generally results in slight error, but with certain specific boundary conditions may result in qualitatively different results. 9 Biblio. Refs.
1/1

UESR

UDC: 519.214

MANEVICH, D. V., BATIROV, Kh.

"Local Theorem for Limiting Poisson Distribution"

Nauch. zap. Tashkent. in-t nar. kh-va (Scientific Notes of Tashkent Institute of National Economy), 1970, vyp. 34, pp 137-141 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V50)

Translation: The authors consider a sequence of series of random quantities $\xi_{n1}, \xi_{n2}, \dots, \xi_{nk_n}$, which are uniformly distributed in each series and take on integral non-negative values. It is assumed that $S_n = \xi_{n1} + \dots + \xi_{nk_n}$. The following theorem is proved. In order that

$$P(S_n = m) \rightarrow \frac{\lambda^{m_0} e^{-\lambda}}{m!},$$

it is necessary and sufficient that the following two conditions be satisfied: 1) the distribution function of the sum $S_n - \lambda S_n + \lambda$ converges to a Poisson distribution function with parameter λ ; 2) the GCD for these differences m_1, m_2, \dots for which $P(\xi_{n1} = m_1) > 0, P(\xi_{n1} = m_2) > 0$ is unity. V. Kolchin.

1/1

- 4 -

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HARDENING OF POLY,ORGANOSILOXANES -U-
AUTHOR--(03)-ANDRIANOV, K.A., MANEVICH, I.YA., TELESHEVA, N.A.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 265,448
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYMER, SILOXANE, CHEMICAL PATENT, ORGANOLEAD COMPOUND,
ORGANOTIN COMPOUND, HARDNESS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1762 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0137002
UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AA0137002
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(ORGANOSILOXANES) WITH
FUNCTIONAL GROUPS ARE HARDENED QUICKLY AND AT LOW TEMPS. WITH AN ACIDIC
CATALYST OF PG METHYLPHOSPHONATE OR DIBUTYL TIN. FACILITY:
INSTITUT ELEMENTORGANICHESKIKH SOYEDINENIY AN SSSR.

UNCLASSIFIED

USSR

UDC 624.07:534.1

MANEVICH, L. I., CHEREVATSKIY, R. P.

"On an Approximate Determination of Normal Vibrations of a Nonlinear System With Two Degrees of Freedom"

V sb. Vopr. prochnosti, nadezhnosti razrush. mekh. sistem (Problems of the Strength, Reliability and Breakdown of Mechanical Systems -- Collection of Works), Dnepropetrovsk, 1969, pp 26-34 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6V228)

Translation: An approximate method for determining normal vibrations of non-linear and linear systems of asymmetric configuration with two degrees of freedom is presented. The method is based on the introduction of a small parameter and an asymptotic analysis of the equations of motion. The properties of normal vibrations are used, making it possible to obtain integrable nonlinear systems of equations in the first approximation for each of the two normal forms. The corresponding forms and periods of the nonlinear oscillations are determined. The equivalent characteristics of sequentially connected nonlinear springs with analytical characteristics are determined.

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USSR

MANEVICH, L. I., CHEREVATSKIY, B. P., Vopr. prochnosti, nadezhnosti razrush. mekh. sistem, Dnepropetrovsk, 1969, pp 26-34

The stability of the normal solutions is discussed and threshold amplitudes of the oscillations are determined. S. A. Dobrodeyev.

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USSR

MANEVICH, L. I., CHEREVATSKIY, B. P.

"Approximate Determination of Quasinormal Oscillations of a Nonlinear System with Two Degrees of Freedom in the Presence of Viscous Friction"

Tr. Dnepropetr. in-ta inzh. zh.-d. transp. (Works of Dnepropetrovsk Institute of Railroad Transportation Engineers), 1970, vyp. 110, pp 36-41 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11A124)

Translation: The equations of motion of an autonomous system with two degrees of freedom distinguished from linear by "nonlinearly elastic" terms are written out. The case is investigated where one of the masses is much smaller than the other. It is proposed that the solution be found in the form of a series with respect to powers of the small parameter equal to the ratio of the smaller mass to the larger mass. The "generating" equations are presented. The bibliography has 9 entries.

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1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--REPEATED OPERATIONS ON THE LUNGS AND PLEURA--U-
AUTHOR--(03)--MANEVICH, V.L., BOGDANOV, A.V., STONOGIN, V.D.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 6, PP 62-66
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--THORACIC SURGERY, LUNG, DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1767 STEP NO--UR/0531/70/000/006/0062/0066
CIRC ACCESSION NO--AP0129135
UNCLASSIFIED

2/2 017
CIRC ACCESSION NO--AP0129135

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ARTICLE DEPICTS AN ANALYSIS OF 21 REPEATED OPERATIONS ON THE LUNGS AND PLEURA PERFORMED IN PATIENTS WHO WERE PREVIOUSLY OPERATED UPON IN OTHER HOSPITALS. IN THE OVERWHELMING MAJORITY OF CAUSES OF FAILURE WERE DUE TO INCOMPLETE EXAMINATION OF THE PATIENT BEFORE THE FIRST OPERATION (4) AND HENCE A NONRADICAL OPERATION, TECHNICAL ERRORS COMMITTED DURING THE OPERATION (7), COMPLICATIONS OCCURRING IN THE IMMEDIATE POSTOPERATIVE PERIOD (3). A TRUE RELAPSE OF THE DISEASE WAS REVEALED ONLY IN 2 CASES. THE METHODS OF EXAMINATION TO PATIENTS ADMITTED FOR REPEATED OPERATIONS ARE ANALYZED. THE RESULTS OF REPEATED OPERATIONS ARE GIVEN. OUT OF 21 PATIENTS OPERATED 6 DIED. A CONCLUSION IS MADE THAT OPERATIONS ON THE LUNGS SHOULD BE PERFORMED IN SPECIALIZED HOSPITALS, THIS WILL ENABLE TO REDUCE THE NUMBER OF COMPLICATIONS, INCLUDING THOSE WHICH REQUIRE A REPEATED OPERATIVE INTERVENTION. FACILITY: 3-YA KAFEDRA KLINICHESKOY KHIRURGII TSIU, MOSKVA.

UNCLASSIFIED

USSR

UDC 666.1.031.29

POPOV, O. N., Engineer. GALDINA, N. M., MANEVICH, V. Ye. Candidates of Technical Sciences. (State Scientific Research Institute of Glass)

"Investigating the Stability of Bakor-33 at Molten Glass Temperatures Under Industrial Conditions by the Method of Regression Analysis"

Moscow, Steklo i Keramika, No 8, Aug 71, pp 7-10

Abstract: Mathematical models of corrosion process of electro fusion-coat refractory slabs (250x400x600 m) made of Bakor-33 in the upper part of glass-melting furnaces were constructed using the method of regression analysis, on the basis of results of a study of refractory laying of 12 glass-melting furnaces for sheet glass, after their shutdown for overhaul. The depth of corrosion at the level of the molten glass surface served as dependent variable in the model, while the duration of furnace operation, the specific yield of glass mass, and melting temperatures (1430-1540°C), given in a table, were used as independent variables. The mathematical model of the corrosion process was represented by a Taylor series, with coefficient evaluated by the method of least squares. An analysis of equations obtained showed the unsuitability of Bakor-33 for high temperature (up to 1600°C) glass melting. The

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USSR

POPOV, O. N., et al., Steklo i Keramika, No 8, Aug 71, pp 7-10

corrosion process of this refractory material is fully determined by the maximum melting temperature. The specific yield and temperature in the zone of slab location affect the rate of corrosion to a significantly lesser degree.

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- 87 -

USSR

UDC 632.95

MANEVICH, ZH. I., HOLOCHNIKOV, YE. V., and ZHAVORONKOV, N. I.

"Comparative Evaluation of Methods for Gas Chromatographic Determination of Carbamate Pesticide Residues"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vneshn. sredy (Transactions of the Second All-Union Conference on the Study of Pesticide Residues and Prevention of Their Contamination of Food Products, Fodder and the External Environment), Tallinn, 1971, pp 77-80 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N444 by T. A. Belyayeva)

Translation: Survey. Comparison of VPC carbamate determination methods. The most promising area is the detection of carbamate pesticides in the form of brominated derivatives with the use of an electron capture detector.

1/1

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1/2 014
UNCLASSIFIED
TITLE—SYNTHESIS OF NEW WEAKLY ACIDIC CATION EXCHANGERS BASED ON CHLORO
SUBSTITUTED PHENOLS —U—
AUTHOR—(03)—MANGASAROV, S.A., PAUSHKIN, YA.M., OMAROV, O.YU.
COUNTRY OF INFO—USSR
SOURCE—VYSOKOMGL. SOEDIN., SER. B. 1970, 12(3), 173
DATE PUBLISHED—70
SUBJECT AREAS—CHEMISTRY
TOPIC TAGS—CATION EXCHANGE RESIN, CHLORINATED AROMATIC COMPOUND, PHENOL,
CATALYTIC POLYMERIZATION
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—2000/0662
STEP NO—UR/0460/70/012/003/0173/0173
CIRC ACCESSION NO—AP0124334
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIRC ACCESSION NO--AP0124334

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE POLYMER. OF CHLOROPHENOLS, SUCH AS O CHLOROPHENOL, IN THE PRESENCE OF ALCL SUB3 CUCL SUB2, FECL SUB3, O MOCL SUB5 IN THE 150-300DEGREES RANGE GAVE ION EXCHANGE RESINS STABLE LESS THAN OR EQUAL TO 350DEGREES WITH ION EXCHANGE CAPACITY 2.5-4.5 MEQUIV.-G.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--11 DEC 70
TITLE--UNSATURATED LACTONES. I. SYNTHESIS OF SUBSTITUTED UNSATURATED GAMMA
LACTONES BY CONDENSING TERTIARY ALPHA OXO ALCOHOLS WITH MALONIC ESTER
AUTHOR--(05)--AVETISYAN, A.A., TATEVUSYAN, G.E., MANGASARYAN, I.S.A.,
MATSOYAN, S.G., GASYAN, M.T.
COUNTRY OF INFO--USSR

SOURCE--Zh. Org. Khim. 1970, 6(5), 962-4 (RUSS).

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ESTERIFICATION, CHEMICAL SYNTHESIS, LACTONE, ALCOHOL,
CONDENSATION REACTION, MOLECULAR STRUCTURE, TERTIARY ALCOHOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1316

STEP NO--UR/0366/70/006/005/0962/0964

CIRC ACCESSION NO--AP0134990

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 C09

CIRC ACCESSION NO--AP0134990

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF RR C(OH)COME WITH
CH SUB2 (CO SUB2 ET) IN ABS. ETOR CENG. NA GAVE S,R, B,R PRIME
DISTRIBUTED 4,METHYL,DELTA ALPHA,BETA,BUTENOLIDES IR AND A PRIME ARE ME
AND ME, ME AND ET OR (CH SUB2) SUB51. THE REACTION INVOLVES
TRANSESTERIFICATION. THE INTERMEDIATE ESTER MECOME SUB2 J SUB2 CCH
SUB2 CO SUB2 ET WAS ISOLATED AND ITS STRUCTURE ESTABLISHED BY SYNTHESIS.
FACILITY: EREYAN. GOS. UNIV., EREYAN, USSR.

UNCLASSIFIED

MEDICINE
Aerospace Medicine

UDC 612.821.358.4

USSR

MANGINA, D. V.

"The Physiological Cost of Flying"

Moscow, Voenno-Meditsinskiy Zhurnal, No 6, 1971, pp 61-64

Abstract: The nervous and emotional strain associated with flying takes a heavy physiological toll from pilots in increased stress on the cardiovascular, respiratory, and autonomic nervous systems, as shown by this brief review of the Soviet and foreign literature on the subject. Disruption of the normal circadian rhythms and other physiological functions brings on fatigue and inattentiveness, which enhance the possibility of accidents. Tolerance for flying can be created in two ways: (a) specific - proper organization of the flight training program, and (b) nonspecific - efficient organization of flight routines, adequate rest and nutrition, regular physical exercise, and so forth.

1/1

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--KINETICS OF THE PHOTOMECHANICAL EFFECT -U-
AUTHOR--MANIKS, I.
COUNTRY OF INFO--USSR M
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (2),
35-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS, MATERIALS
TOPIC TAGS--CHEMICAL KINETICS, GERMANIUM, ANTIMONY, CADMIUM SULFIDE,
MICROHARDNESS, PHOTOEFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1340 STEP NO--UR/0371/70/000/002/0035/0037

CIRC ACCESSION NO--AP0121833
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121833

ABSTRACT/EXTRACT---(U) GP-0- ABSTRACT. THE KINETICS OF THE PHOTOMECH. EFFECT WAS STUDIED ON GE, INSB, SB, AND CDS BY USING THE MICROHARDNESS TECHNIQUE. THE MICROHARDNESS IN THESE MATERIALS DECREASES WITH THE DURATION OF APPLIED SQUARE LIGHT PULSES AND REACHES SATN. AT DURATIONS OF THE ORDER OF 0.02-0.03 SEC, WHEN THE VALUES OF THE PHOTOMECH. EFFECT FOR GE, INSB, SB, AND CDS ARE 10PERCENT, 4PERCENT, 3PERCENT, AND 9PERCENT, RESP. FROM A COMPARISON OF THE EXPTL. RESULTS ON THE ELECTROMECH. AND PHOTOMECH. EFFECTS, THE POSSIBILITY OF THE PROCESSES IN THESE 2 EFFECTS BEING SIMILAR IS NOT EXCLUDED. THE PHOTOMECH. EFFECT IS PROBABLY NOT SO MUCH ASSOCD. WITH THE INHERENT PROPERTIES OF A MATERIAL AS IT IS DUE TO THE SPECIFIC CONDITIONS OF THE SURFACE OF THE MATERIAL.

FACILITY: INST. FIZ., RIGA, USSR.

UNCLASSIFIED

1/2 012
TITLE--TEMPERATURE DEPENDENCE OF THE COHESION COEFFICIENT FOR NEWLY FORMED
CADMIUM SURFACES -U-
AUTHOR--UPITIS, G., MANIKS, I.
COUNTRY OF INFO--USSR
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (1),
69-71
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CADMIUM, SURFACE AREA, COHESION STRENGTH, CONSTANT COEFFICIENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1321
STEP NO--UR/0371/70/000/001/0009/0071
UNCLASSIFIED
AP0106098

2/2 012

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106098

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE TEMP. DEPENDENCE OF THE COHESION COEFF. OF NEWLY FORMED CD SURFACES WAS INVESTIAGTED. AT SMALLER THAN 0.25 T SUBM, WHERE T SUBM IS THE M.P., NO RESIDUAL COHESION WAS FOUND; AT LARGER THAN 0.25 T SUBM IT INCREASED SUBSTANTIALLY WITH TEMP. THE TRANSITION BETWEEN THE 2 TEMP. RANGES WAS FOUND IN THE PANGE OF RECOVERY TEMPS. SIMILAR BEHAVIOR IS SUGGESTED FOR OTHER METALS OF HEXAGONAL STRUCTURE.

UNCLASSIFIED

USSR

MANILOVA, Zh.

"The Planet's Clean Water"

Leningrad, Leningradskaya Pravda, 19 Aug 71, p 3

Abstract: The 18th International Limnological Congress is being held in Leningrad now and Academician B. Ye. Bykhovskiy, Leningrad scientist who is opening the congress, told the reporter that Soviet scientists have played an active part in saving the USSR's clean water. Specifically, plans are now being made to establish a national park around Lake Baykal, with a total area of 40,000 square kilometers. Lumber operations around the lake have been banned, and no new industrial installations will be permitted. Furthermore, those industries now in operation have outstanding, modern purification facilities. Lake Sevan in the mountains of Armenia (1,610 m) has been an object of concern, due to its falling waters. Scientists have now laid plans to replenish its waters with the flow of several streams, which will be drawn in through tunnels. In addition, the lake is being stocked with fish. Professor G. G. Vinberg, president of the All-Union Hydrobiological Society, was asked about the biological processes taking place in lakes, specifically those which purify the water. He referred to zooplankton and their role in filtration,

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USSR

MANILOVA, Zh., Leningradskaya Pravda, 19 Aug 71, p 3

phytoplankton and photosynthesis, the obvious danger of toxic substances running into the lakes, and the more subtle danger from nitrogen and phosphorous leading to choking with algae - the problem of "eutrophication." These, he says, are the leading concerns of Soviet limnologists at the present time.

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USSR

UDC 539.4:624

MAHIN, M. I.

"Calculation of Frame Structures for Seismic Effects Considering the Pliability of the Foundation"

Tr. Tashkent. in-ta inzh. irrig. i mekhaniz. s. kh. (Works of the Tashkent Institute of Irrigation and Rural Mechanization Engineers), 1970, Vol. 33, pp 182-189 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V878)

Translation: The basic conclusions of a study of the seismic reaction of buildings considering the pliability of the foundation are presented. It is indicated that the elastic deflection of the foundation causes a lowering of the seismic load by 12-20%. The elastic shift in the foundation causes an increase in the seismic load. The opinion is expressed that the construction of the foundation of ancient buildings is explained by the effect of two factors associated with the pliability of the foundation: their great depth and their downward converging shape. There is noted the slight effect of higher forms of oscillations on the magnitude of the total seismic load on the structure

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USSR

MANIN, M. I., Tr. Tashkent. in-ta irzh. irrig. i mekhaniz. s. kh., 1970,
Vol. 33, pp 182-189

(less than 10%). The shift in the base decreases by 20-30% all frequencies of the oscillations and not only the first, as in the case of considering only the deflection of the foundation. 17 ref. Ya. M. Ayzenberg.

2/2

1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PREDICTION OF THE HERMETIC STATE OF PLASTICS IN CONTACT WITH
CHEMICAL REAGENTS -U-
AUTHOR-(02)-MANIN, V.N., GRONOV, A.N.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (2), 68-70
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CHEMICAL STABILITY, PLASTIC, CORROSION RATE, THERMODYNAMIC
PROPERTY, GASKET, NITRIC ACID, HEPTANE, TEFLON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1696 STEP NO--UR/0191/70/000/002/0068/0070
CIRC ACCESSION NO--AP0112690
UNCLASSIFIED

PROCESSING DATE--30OCT70

UNCLASSIFIED

2/2 039

CIRC ACCESSION NO--AP0112690

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO METHODS (VIZ., A GRAVIMETRIC SORPTION METHOD AND A PERMEABILITY METHOD) WERE DEVELOPED FOR THE EVALUATION OF DURABILITY AND OPERATING LIMITS OF UNSTRESSED AND STRAINED PLASTICS IN CONTACT WITH CORROSIVE MEDIA. SEVERAL EQUATIONS WERE DERIVED FOR THE CALCN. OF PERMEABILITY OF CORROSIVE MEDIA FROM KINETIC AND THERMODYNAMIC CONSIDERATIONS. THE METHODS DEVELOPED WERE APPLIED EXPTL. TO POLY(TETRAFLUOROETHYLENE) GASKETS AND MEMBRANES IN CONTACT WITH CONCD. HNO SUB3 FOR 100-450 DAYS AT 50DEGREES WITH C SUB7 H SUB16 AT 20DEGREES. THE EXPTL. DATA AGREE WITH CALCD. RESULTS.

UNCLASSIFIED

1/2 024
TITLE--CORRELATION BETWEEN STRUCTURE AND FUNCTION
PATHOLOGICAL CONDITIONS -U-
AUTHOR--MANINA, A.A.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR, 1970, VOL 25, NR 3, PP
26-31
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CYTOLOGY, CELL PHYSIOLOGY, METABOLISM, FUNCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/1742
CIRC ACCESSION NO--AP0138715
UNCLASSIFIED
PROCESSING DATE--040870
UNDER NORMAL AND
STEP NO--UR/0248/70/025/003/0025/0031

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 024

CIRC ACCESSION NO--AP0138715

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IT IS NOW GENERALLY CONCEDED THAT

REGULATION OF BIOLOGICAL PROCESSES IN THE CELL UNDER NORMAL AND

PATHOLOGICAL CONDITIONS IS EFFECTED BY ITS ULTRASTRUCTURAL COMPONENTS,

THAT MAINLY ITS MEMBRANE SYSTEMS INVOLVED IN METABOLIC AND PLASTIC

FUNCTIONS PLAYS THE CHIEF INTEGRATIVE ROLE IN THEM. I. P. PAVLOV

FORMULATED THE PRINCIPLE OF SELF REGULATION OF FUNCTIONS AS FOLLOWS:

"THE ORGANISM IS A LARGELY SELF REGULATING, SELF MAINTAINING, SELF

RESTORING SYSTEM, SELF DIRECTED AND EVEN SELF IMPROVING". THIS CAN BE

APPLIED FULLY TO THE CELL IN GENERAL, INCLUDING THE NEURON, WHICH IS A

RATHER SELF REGULATING COMPLEX STRUCTURAL AND FUNCTIONAL SYSTEM WHICH IS

IN CONTINUOUS MOTION AND IT IS CHANGING.

EXPERIMENTAL MEDICINE, LENINGRAD.

FACILITY: INSTITUTE OF

UNCLASSIFIED

USSR

UDC 632.951:595.42

MANINA, I. I., and PAVLOVA, G. A., Scientific Research Institute of Plant Protection, Tashkent

"Effect of the Preparation Acar-338 on the Spider Mite and Its Predators"
Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 6, 1971, pp 24-26

Abstract: As part of a search for chemicals which are of low toxicity for spider mite predators (stethorus and aphid lion), laboratory and field tests were conducted in 1969 on the acaricides acar-338 (25-percent wettable chlorobenzilate powder) and Rogor. In the laboratory experiments cotton leaves inhabited by larvae, chrysalises, eggs and adults of stethorus were immersed for 30 sec in aqueous emulsions or suspensions of the acaricides in a concentration of 0.00039-0.025 percent a.i. The field experiments were staged at the "Pakhtakor" Kolkhoz, Bagdatskiy Rayon (Ferganskaya Oblast) and the Kolkhoz imeni Lenin, Papsiy Rayon (Namanganskaya Oblast). It was found that acar-338 is 3.4 times less toxic than Rogor for stethorus eggs, 1.2 times for larvae, 3.8 times for chrysalises, and 19.2 times for mites. It is recommended that the chemical be used at a dose of 1 kg/ha in June and the beginning of July, and at a dose of 2 kg/ha in the middle of July. Working fluid consumption is 600-800 l/ha.

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USSR

UDC 519.2

MANIYA, G. M.

"Quadratic Error in Estimating the Normal Distribution Density with Respect to Many Samples"

Soobshch. AN GruzSSR (Reports of the Georgian SSR Academy of Sciences), 1972, Vol 67, No 2, pp 301-304 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V94)

Translation: Let $x^{(i)} = \{x_j^{(i)}, j = 1, \dots, n_1\}$, $i = 1, \dots, k$ be independent samples of a general set distributed with the density

$$f(x; a, \sigma) = (2\pi)^{-1/2} \sigma^{-1} \exp\left\{-\frac{(x-a)^2}{2\sigma^2}\right\},$$

on the basis of which we have independent parametric estimates of general density where

$$\bar{x}_i = n_i^{-1} \sum_{j=1}^{n_i} x_j^{(i)} \text{ and } s_i^2 = (n_i - 1)^{-1} \sum_{j=1}^{n_i} [x_j^{(i)} - \bar{x}_i]^2,$$

For mutual comparison of these estimates a study was made of the statistic
($n = \sum n_i$)
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USSR

MANIYA, G. M., Soobshch. AN GruzSSR, 1972, Vol 67, No 2, pp 301-304

$$\Psi_k(\bar{x}; \bar{s}, n) = \sum_{l=1}^k n_l \int_{-\infty}^{\infty} \left[f_l(x) - \frac{1}{n} \sum_{l=1}^k n_l f_l(x) \right]^2 dx.$$

The limiting distribution $G_k(u)$ for $\min n_l \rightarrow \infty$ of the indicated statistic is established. Namely,

$$G_k(u) = \frac{2^{k-1}(k-2)!}{\pi^{\frac{k-1}{2}} \Gamma\left(\frac{k-1}{2}\right)} \int \prod_{\substack{0 \leq x_l \leq 1 \\ l=1, \dots, k-1}}^{k-1} (1-x_l^2)^{-1/2} x_l^{2k-3-l} \times \\ \times \left(1 - \exp \left(- \frac{8\sqrt{\pi}u}{4-x_1^2-x_2^2-\dots-x_{k-1}^2} \right) \sum_{i=1}^{k-2} \frac{1}{i!} \times \right. \\ \left. \times \left(\frac{8\sqrt{\pi}u}{4-x_1^2-x_2^2-\dots-x_{k-1}^2} \right)^i \right) dx_1 dx_2 \dots dx_{k-1}.$$

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Water Treatment

USSR

UDC 541.083.2

MANK, V. V., KUCHERUK, D. D., Institute of Colloid Chemistry and Water Chemistry, Ukrainian Academy of Sciences, Kiev

"NMR Study of the State of Water in Cellulose-Acetate Semipermeable Membranes"

Moscow, Kolloidnyi Zhurnal, Vol 35, No 6, November-December 73, pp 1073-1077

Abstract: The location and form of the nuclear magnetic resonance (NMR) spectrum of the protons of water in cellulose acetate semipermeable membranes used for demineralizing water by reverse osmosis were shown to depend on the orientation of the membrane (parallel or perpendicular) in the magnetic field and the nature of the surrounding medium (air, C 7 H₁₂ 6, CCl 4, water). Ions of dissolved salts penetrate the pores of the membrane and exert an effect on the shift of the water in them. With an increase in the hydrating capacity of the cations (Mg, Ba, Li, Na, Al) and anions (Cl, F, CH₃COO), the NMR signal of water is more strongly displaced in a weak field. The ions K⁺, Na⁺, Rb⁺, and Ba²⁺ increase and Ca²⁺, Mg²⁺, and Al³⁺ decrease the structural temperature of the solution in the pores. Since membranes have high selectivity for the latter group of ions, simple hydrate shells forming around these ions hinder their movement through the pores.

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1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--USE OF PMR FOR EVALUATING THE CHEMISTRY OF THE DEHYDRATION OF
MONOSUBSTITUTED MAGNESIUM, CALCIUM, AND BARIUM ORTHOPHOSPHATES -U-
AUTHOR--(04)-BREKHUNETS, A.G., MANK, V.V., PECHKOVSKIY, V.V., SHCHEGROV,
L.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(3), 509-12
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHOSPHATE, MAGNESIUM COMPOUND, CALCIUM COMPOUND, BARIUM
COMPOUND, DEHYDRATION, MAGNETIC RESONANCE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0329 STEP NO--UR/0368/70/012/003/0509/0512
CIRC ACCESSION NO--AP0119316
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119316

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THERMAL DEHYDRATION UPON THE WIDE LINE PMR SPECTRA OF MG (H SUB2 PO SUB4) SUB2.2H SUB2 O, CA(H SUB2 PO SUB4) SUB2.H SUB2 O, AND BA (H SUB2 PO SUB4) SUB2. O.1H SUB2 O WERE STUDIED AT 25 AND MINUS 120DEGREES. THREE OVERLAPPING BANDS WERE OBSD. IN THE SPECTRA: THE 1ST BAND, ATTRIBUTED TO CRYSTN. WATER, IS ABSENT IN BA PHOSPHATE AND DISAPPEARS FROM THE OTHERS AFTER DEHYDRATION AT 250DEGREES, THE 2ND BAND, WHICH BELONGS TO OH GROUPS OF H SUB2 PO SUB4 PRIME NEGATIVE IONS AND TO WATER OF LIMITED MOBILITY, INDICATES THE BEGINNING OF H SUB2 PO SUB4 PRIME NEGATIVE DECOMPN. AT 250DEGREES, THE BAND DISAPPEARS AT 450DEGREES IN THE CASE OF MG PHOSPHATE, THE 3RD BAND OF MOBILE WATER REMAINS IN THE SPECTRUM EVEN AFTER THE SAMPLE HAS BEEN DEHYDRATED AT 600DEGREES. THE SLIGHTLY MORE COMPLEX BEHAVIOR OF CA PHOSPHATE IS ALSO DESCRIBED. THE LINEWIDTHS AND 2ND MOMENTS ARE GIVEN AS WELL AS THE CALCD. INTERPROTONIC DISTANCES.

UNCLASSIFIED

USSR

UDC 621.385.632.01

MAN'KIN, I.A., KONTORIN, YU.F.

"Investigation Of The Effect Of Low-Frequency Modulation At The Beam Boundaries On The Spectrum Of The Output Signal Of A TWT (Abstract Of Deposited Manuscript)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, pp 45-46 (from RZh---Elektronika i yeye primeneniya, No 4, April 1971, Abstract No 4A178)

Translation: The results are presented of a theoretical analysis by the wave law of the AM and FM output signals of a traveling-wave tube resulting from the low-frequency oscillations of the boundaries of the electron beam. Summary.

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Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. Svch (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 51-58
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A184)

Translation: An experimental and theoretical investigation was conducted of the effect of pulsations of the electron stream on the output power of a traveling-wave tube. Devices were investigated in which focusing of the electron stream was accomplished both by a magnetic periodic focusing system and by the permanent magnetic field of a solenoid. Good agreement of the experimental results with the theoretical was obtained. 6 ref. Summary.

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USSR

UDC 547.944/945

MAN'KO, I. V., and MARCHENKO, I. G., Leningrad Chemical-Pharmaceutical Institute

"Pictumine -- a new Alkaloid from Cynoglossum Pictum"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 5, 1972, pp 655-656

Abstract: Five alkaloids have been isolated from Cynoglossum pictum Ait., from which one remained unidentified. This alkaloid, m.p. 158-159° is soluble in water, methanol, ethanol, benzene, acetone, and chloroform; it is insoluble in petroleum and diethyl ethers. Its IR spectrum shows absorption bands at 1720, 1705, 1280, 1250, and 1160 cm⁻¹. On the basis of these data a conclusion has been reached that this alkaloid is a new compound, so it was named pictumine.

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Alkaloids

USSR

UDC: 547.944/945

MAN'KO, I. V., KOTOVSKIY, B. K., Leningrad Institute of Pharmaceutical Chemicals

"A New Alkaloid From the Plant *Symphytum Asperum* Lepech. -- Asperumin and its Structure"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2519-2520

Abstract: Alkaloids are isolated from *Symphytum asperum* Lepech., the greatest in quantity being named asperumin. Paper chromatography first revealed a single alkaloid, but thin-layer chromatography on aluminum oxide later showed that the herb contains three alkaloids in addition to asperumin -- heliosupin oxide, echinatin and an unidentified alkaloid (the last two in minute quantities). Alkali hydrolysis of a natural mixture of the alkaloids from *S. asperum* Lepech. yields the following pure compounds: aminoglycol heliotridin, angelic acid, acetone and α,β -dioxymutyric acid. However, the chemically pure form of the alkaloid contains only heliotridin and angelic acid.

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USSR

UDC 539.6'

DUNAYEV, F. N., LOBANOVA, N. B., ~~MAN'KO, L. M.~~, and YAKOVLEV, G. P.

"Kinetics of Local Directional Order-Disorder Transformation in Permalloy-66"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 175-178

Abstract: The effect of holding time at various temperatures on the logarithmic decrement of damping and period of low-frequency torsional vibrations of Fe-66% Ni alloy samples, preliminarily annealed and cooled at different rates in the presence and absence of a magnetic field is investigated.

It is shown that curves of temperature dependence $\delta(t)$ and $T(t)$ reflect the kinetics of local directional order-disorder transformation. Relaxation times of this transformation depend weakly or not at all on the initial pattern of pair distribution of identical atoms. The activation energy of local directional order-disorder transformation is close to or coincides with the activation energy of the opposite process, i.e., the thermomagnetic treatment effect. 2 figures, 6 references.

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USSR

UDC 621.375.82

AKERMAN, D., YELISEYEV, P. G., KAYPER, A., MAN'KO, M. A., RAAB, Z.

"Methods for Selection of Types of Oscillations in Injection Semiconductor Lasers"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 85-90 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D.115)

Translation: To improve the spectral composition of radiation of an injection semiconductor laser, particularly to raise the yield power in a mode of a single type of oscillations, external elements having spectral selectivity were introduced into the resonator of the semiconductor laser. The following versions were studied experimentally: (a) a compound resonator; (b) a resonator with an interference filter; (c) two optically connected Fabry-Perot-type resonators of different lengths. The effect of the external selective element on the radiation spectrum of the laser was observed in all cases, and generation in one longitudinal type of oscillations was achieved for an essentially greater excess of the threshold than in ordinary injection semiconductor lasers. The output power in a single-frequency mode was up to 0.5 w (in the case of a composite resonator). Possibilities of detuning the wavelength of the laser with the aid of external elements was studied within the range of the amplification band of the semiconductor. 15 ref. Authors abstract.

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USSR

UDC: 621.373:530.145.6

AKERMAN, D., YELISEYEV, P. G., KAYPER, A., MAN'KO, M. A., RAAB, Z.

"Methods of Mode Selection in Injection Semiconductor Masers"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 85-90 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D173)

Translation: In order to improve the spectral composition of emission from an injection semiconductor maser, especially to increase the output power in one wave mode, external elements having spectral selectivity were introduced into the maser cavity. The following modifications were experimentally studied: a) a composite cavity; b) a cavity with an interference filter; c) two optically coupled cavities of the Fabry-Perot type with different lengths. The effect of the external selective element in the maser emission spectrum is observed in all cases, and emission on a single longitudinal wave mode is achieved at an appreciably higher excess over the threshold than in conventional semiconductor injection masers. The output power in the single-frequency mode is as high as 0.5 W (in the case of a composite cavity). An investigation is made of the possibilities for tuning the maser wavelength by means of external elements within the range of the amplification band of the semiconductor. Five illustrations, bibliography of fifteen titles.

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USSR

UDC 614.832-08+.48

ALEKSEYEVA, M. I., MANIKOV, L. M., TSETLIN, V. M., MAL'KOV, O. S., BAVEL'YEVA, A. R., and STEPANOVA, O. L., All-Union Institute of Disinfection and Sterilization, Moscow

"An Aerosol Method for the Disinfection of Ambulances"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 137-141

Abstract: Evaluation was made of the efficacy of different concentrations of hydrogen peroxide (I) aerosols in disinfecting ambulance interior and exterior surfaces. The surfaces were contaminated with Staphylococcus aureus or anthrax spores to a density of 10^5 - 10^7 cells/cm². The results showed that complete sterilization of the staphylococcus cells on interior surfaces could be attained with 3% I aerosol in 30 min at -6° to 22° and with an aerosol volume of 100 ml/m², whereas sterilization of the surfaces contaminated with the spores required 10% I and a volume of 200 ml/m². For the exterior surfaced 6% I, 400 ml/m², for 30 min was required to sterilize surfaces contaminated with staphylococcus, and 10% I was required for surfaces contaminated with the anthrax spores. Essentially similar results were obtained with calcium hypochlorite (5%, 100 ml/m², 60 min) and formaldehyde (10% and 20% for staphylococcus and anthrax spores, respectively, 100 ml/m², 30 min).

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1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--IMMUNOSORBENTS -U-
AUTHOR--(02)-SHAKHANINA, K.L., MANKO, N.I.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 235,918
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--POLYCONDENSATION, DIAZONIUM SALT, IMMUNOLOGY, ANTIGEN,
PROTEIN, SORPTION, CHEMICAL PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1583 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0135224
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0135224

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMMUNOSORBENTS ARE PREPD. BY
POLYCONDENSATION OF PROTEIN ANTIGENS IN THE PRESENCE OF BISDIAZONIUM
SALTS. BISDIAZOTIZED AROMATIC DIAMINE BOROFLUORIDES ARE USED AS
CONDENSING AGENTS.

UNCLASSIFIED

USSR

UDC 614.7:615.28:547.1'118

SPYNU, YE, I., Doctor of Medical Sciences, VROCHINSKIY K. K., ZOR'YEVA, T. D., and MAN'KO, N. N., All Union Scientific Research Institute of Hygiene and Toxicology of Insecticides, Polymers, and Plastics, Kiev

"Comprehensive Approach to the Setting of Standards for New Organophosphorus Pesticides in Environmental Objects"

Moscow, Gigiyena i Sanitariya, No 11, 1972, pp 96-99

Abstract: Such organophosphorus compounds as thiophos, metaylmercaptophos, carbophos, etc. may enter the human body with food, water, and air. Hence a comprehensive approach to the setting of standards for the pesticides is recommended. It involves establishing the maximum permissible dose for man and the relative share of each medium in the dose, i.e., $D_M = \sum_{i=1}^3 D_i$,

where D_M is the safe permissible dose for man; D_1 is the amount of pesticide in food; D_2 is the amount of pesticide in water; D_3 is the amount of pesticide in inhaled air; i is the amount in the i th medium. The following steps are taken to set the standard for a given pesticide: (i) toxicological studies and generalization of the results to determine D_M for animals; (ii) determination

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USSR

SPYNO, YE. I., et al., Gigiyena i Sanitariya, No 11, 1972, pp 95-99

of D_M for man based on the comparative sensitivity of man and animals to the compound; (iii) determination of the actual content of the pesticide in various media ($K_1, K_2 \dots K_i$) and relative share of each medium in D_M for man, calculation of the standard in a medium based on D_M for man and on K_1 ; (iv) comparison of D_M for man with the total amount of the pesticide that may penetrate the human body after coming into contact with various media. Earlier studies showed that man and animals are equally sensitive to most organophosphorus pesticides after a single exposure. However, man is considerably more sensitive after chronic or prolonged exposure.

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1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--POSSIBLE CASE OF VIOLATION OF THE INDEPENDENCE OF COMPOUND NUCLEUS
DECAY OF THE INPUT CHANNEL SPIN -U-
AUTHOR--(05)--KARADZHEV, K.V., MANKO, V.I., PERSESYAN, A.N., CHUKREEV, F.E.,
KURCHATOV, I.V.
COUNTRY OF INFO--USSR
SOURCE--JETP LETTERS (USA), VOL. 11, NO. 2, P. 88-92 (JAN. 1970)
DATE PUBLISHED--JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ANGULAR DISTRIBUTION, NUCLEAR SPIN, COMPOUND NUCLEUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1787 STEP NO--US/0000/70/011/002/0038/0092
CIRC ACCESSION NO--AP0133692
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0133692
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASUREMENTS OF THE ANGULAR
DISTRIBUTIONS OF REACTIONS ON NUCLEI WITH NONZERO SPIN UNCOVER NEW
POSSIBILITIES OF VERIFYING THE INDEPENDENCE OF THE COMPOUND NUCLEUS
DECAY METHOD OF THE INPUT CHANNEL OF THE REACTION. FACILITY:
ATOMIC ENERGY INST., USSR.

1/2 017 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--EVOLUTION OF THE COHERENT STATES OF A CHARGED PARTICLE IN A VARYING
MAGNETIC FIELD -U-
AUTHOR-(03)-MALKIN, I.A., MANKO, V.I., TRIFONOV, D.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 2, PP 721-729
DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CHARGED PARTICLE, PARTICLE MOTION, ALTERNATING MAGNETIC FIELD,
TRANSITION PROBABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1976/2067

STEP NO--UR/0056/70/058/002/0721/0729

CIRC ACCESSION NO--AP0043594

UNCLASSIFIED

272 017

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0043594

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEW INVARIANTS ARE FOUND IN THE PROBLEM OF A CHARGED PARTICLE IN A VARYING MAGNETIC FIELD. COHERENT STATES OF A CHARGED PARTICLE IN A UNIFORM VARYING MAGNETIC FIELD ARE INTRODUCED. THE TRANSITION PROBABILITIES BETWEEN LANDAU LEVELS CALCULATED FOR MAGNETIC FIELDS CONSTANT IN THE REMOTE PAST AND REMOTE FUTURE CAN BE EXPRESSED IN TERMS OF JACOBI POLYNOMIALS. EVOLUTION OF THE INITIAL COHERENT STATES IS ALSO DETERMINED. THE GROUP ASPECT OF THE PROBLEM IS DISCUSSED.

UNCLASSIFIED

USSR

UDC 577.391:612.017.1

MAN'KO, V. M., Institute of Biophysics, Ministry of Health USSR, Moscow

"The Effects of Radiation on Transplantation Immunity; Elimination of the Inactivation of Non syngenous Stem Cells by Lymphocytes"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 545-549

Abstract: Upon Transplantation of a mixture of allogeneous cells of hemopoietic and lymphoid tissues to lethally irradiated mice, lymphocytes inactivate the stem elements of the transplant, and the multiplication of colony-forming units (the growth of hemopoietic cells) in the spleen of the recipients is suppressed. In the experiments conducted, the cells of lymph nodes of mice were irradiated in vitro with gamma-rays in the range of 100-600 r, whereupon undamaged (non-irradiated) spleen cells of mice were added to the suspension. The mixture, which contained cells of lymph nodes and of the spleen in a ratio of 1:5 (it had been established in earlier work that at this ratio 70-90% of the colony-forming units are inactivated by allogeneous lymphocytes), was transplanted intravenously to mice that had been irradiated 24 hrs. earlier with a dose of 850 r. After nine days, the number of non-syngenous colonies in the spleens of the irradiated mice was counted and the size of these colonies measured. It was established that the function of

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USSR

MAN'KO, V. M., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 545-549

Inactivation of nonsyngeneous stem cells by lymphocytes was considerably more radiation-resistant than the proliferative activity of hemopoietic or lymphoid elements. The dose-effect curves showed that D_0 for radiation inactivation of the capacity of lymphocytes to inhibit the multiplication of nonsyngeneous colony-forming units was 535 r, $n = 1.08$, as compared with $D_0 = 70-125$ r, $n = 1.0-2.72$, for the suppression of multiplication of hemopoietic or antibody-producing cells. With increasing doses at which the lymphocytes were irradiated, the size of grown (non-inactivated) colonies of hemopoietic cells increased. While functional activity of allogeneous lymphocytes is a necessary condition for the inactivation of nonsyngeneous stem cells by them, proliferation of the lymphocytes is evidently not essential for this effect.

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1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--POSSIBLE OCCURRENCE OF A DISTURBANCE IN THE INDEPENDENCE OF
COMPOUND NUCLEUS DECAY FROM THE ENTRANCE CHANNEL SPIN -U-
AUTHOR--(04)-KARADZHEV, K.V., MANKO, V.N., NERSESYAN, A.N., CHURKREYEV,
F.YE. *M*
COUNTRY OF INFO--USSR
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(2), 88-92
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--COMPOUND NUCLEUS, NUCLEAR SPIN, ANGULAR DISTRIBUTION,
RADIOACTIVE DECAY SCHEME, PARITY PRINCIPLE, NUCLEAR RESONANCE, PROTON
BOMBARDMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1988/0704 STEP NO--UR/0386/'0/011/002/0088/0092
CIRC ACCESSION NO--AP0105678
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105678

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. MEASUREMENTS OF THE ANGULAR DISTRIBUTIONS OF REACTIONS ON NUCLEI WITH NONZERO SPIN MAKE IT POSSIBLE TO VERIFY THE INDEPENDENCE OF THE DECAY MODE OF A COMPD. NUCLEUS ON THE ENTRANCE CHANNEL OF THE REACTION. THE CASE OF A WELL ISOLATED, SINGLE RESONANCE WITH AN ANGULAR MOMENTUM AND A PARITY J^{π} PRIMEPI IS CONSIDERED AS FOUND IN THE INTERACTION OF A N WITH A TARGET NUCLEUS HAVING SPIN I. IN THIS CASE, THE DIFFERENTIAL CROSS SECTION OF THE REACTION (A,B) IS AN INCOHERENT MIXT. OF 2 PARTS CORRESPONDING TO 2 ENTRANCE CHANNELS WITH THE SPINS I EQUALS MINUS ONE HALF AND I EQUALS PLUS ONE HALF. FROM THE INDEPENDENTLY MEASURED ANGULAR DISTRIBUTIONS OF A RESONANCE, THE EXACT PARAMETER OF SPIN MIXING T IS OBTAINED. ONE OF THE SIMPLEST CASES IS CONSIDERED; WHEN THE BOMBARDING PARTICLES ARE P, THE SPIN AND THE PARITY OF THE TARGET NUCLEUS IS ONE HALF PLUS, AND THE STATE OF THE COMPD. NUCLEUS HAS AN ANGULAR MOMENTUM AND A PARITY OF 1 MINUS. THIS STATE CAN BE CREATED ONLY BY THE CAPTURE OF P WITH AN ORBITAL MOMENTUM OF L SUBP EQUALS 1. IN THIS CASE, THE ORBITAL MIXING IN THE ENTRANCE CHANNELS OF THE REACTION IS ABSENT. IN THE REACTIONS (P,P), (P, ALPHA), AND (P,GAMMA) ON A PRIME31 P NUCLEUS, A SINGLE ISOLATED NARROW RESONANCE WAS FOUND THAT HAD A MOMENTUM AND A PARITY OF 1 MINUS AT AN ENERGY OF THE INCIDENT P OF 2114 KEV. DISCREPANCIES IN THE VALUES OF T SUBP, T SUBALPHA, AND T SUBGAMMA INDICATE THAT THE DECAY OF A COMPD. NUCLEUS MAY DEPEND ON THE ENTRANCE CHANNEL.

FACILITY: INST. AT. ENERG. IM.
KURCHATOVA, MOSCOW, USSR.

UNCLASSIFIED

UDC: None

USSR

FILONCHIK, A. V., MEDVEDKOV, V. I., MAN'KO, V. V., and LAPTEV, I. I.

"Device for Solving Partial Differential Equations"

Moscow, Otkrytiya. izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 29, 1973, Author's certificate 389521, p 179

Abstract: This device contains a grid model and a control unit. The inputs to the latter are connected to a program unit, while its outputs are joined to an output switch and a unit for specifying the boundary conditions of the grid model. Its distinctive feature is an auxiliary grid model which shortens the time for solution of the partial differential equation and has the effect of simplifying the structure of the device. The interconnections of this auxiliary grid model with the other units are given.

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1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--LINURON FOR WEED CONTROL IN CORN FIELDS -U-
AUTHOR-(02)-VESELOVSKIY, I.V., MANKO, YU.P.
COUNTRY OF INFO--USSR
SOURCE--VISN. SIL'S'KOGOSPOD. NAUKI 1970, 13(1), 58-63
DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CEREAL CROP, HERBICIDE, WEED KILLER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/1974

STEP NO--UR/0534/70/013/001/0058/0063

CIRC ACCESSION NO--AP0137153

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LINURON PROVED EFFECTIVE IN FIELD
EXPTS. AGAINST WEEDS CONTAMINATING CORN, WHEN APPLIED AT 3-4 KG-HA, AND
DID NOT AFFECT YIELD OR GROWTH. FACILITY: UKR, SIL'S'KOGOSPOD.
AKAD., KIEV, USSR.

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UIC 632.954

SAMOSVAT, L. S., AVDYUSHKINA, S. I., VESELOVSKIY, N. V., and KALININ, M. P.,
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"Aftereffect of Linuron and Its Residues in Soil and Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 3, Mar 70, pp 55-56

Abstract: The authors in 1956-1957 studied under field conditions the effectiveness of linuron on corn plantings and its aftereffect on other agricultural crops, and also determined residues of the chemical in the soil and plants. The experiments were conducted at the Mytnitskaya Agronomical Station of the Ukrainian Agricultural Academy. The soil is deep low-humic medium-loamy chernozem. The linuron was applied during preplant cultivation or preemergence harrowing in doses of 2, 4 and 8 kg/ha. The linuron residues in the soil were determined by two methods, viz. biologically with white mustard as the indicator plant and by thin-layer chromatography. It was found that linuron in a dose of 3-4 kg/ha never penetrated deeper than 10 cm from the soil surface during the corn vegetation period, with 5-7 percent of the initial quantity found in this layer four months after application. The
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SAMOSVAT, L. S., et al., *Khimiya v Sel'skom Khozaystve*, Vol. 8, No 3, Mar 70, pp 55-56

greater part of the herbicide (76.8-81.3 percent) decomposed the first two months following application. No linuron was found in the kernel of fully ripe corn grown with an application of 4 kg/ha of the herbicide. The green mass of corn in the flowering phase contained an insignificant quantity of the herbicide (0.13-0.14 mg per kg of plants with natural moisture content). A 3-4 kg/ha dose of linuron applied to corn had no adverse effect on the yield of oats, vetch-oat mixture, sunflowers, sugar beets or winter wheat.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BIOASSAY BY SINAPIS ALBA AND CHROMATOGRAPHIC ANAL. OF RESIDUAL LINURON FROM FIELD EXPTS. INDICATED THAT THIS HERBICIDE APPLIED AT PRESOWING CULTIVATION PENETRATED TO 10 CM OF STRONG LOW HUMUS, LOAMY CHERNOZEM SOIL. THE HERBICIDE WAS MOSTLY DEGRADED AFTER 2 MONTHS. NO RESIDUES WERE FOUND IN THE SEEDS. CROPS GROWN ON THE TREATED AREAS IN THE FOLLOWING YEARS WERE NOT AFFECTED.

FACILITY: VSES. NAUCH.-ISSLED. INST. GIG. TOKSIKOL. PESTITS., POLIM. PLAST. MASS, KIEV, USSR.

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"Production of 12-Hydroxystearic Acid -- Raw Material for Plastic Lubricants"

Moscow, Khimiya i Tekhnologiya Topliv i Masel, No 2, 1971, pp 21-24

Abstract: It has been established that commercial grades of Soviet castor oil contain 4-6 percent fewer glycerides of ricinoleic acid than foreign specimens. Therefore, the production of a high yield of 12-hydroxystearic acid (12-HSA) requires that the hydrogenation process take place under conditions which assure the maximum conversion of ricinoleic acid into 12-HSA. The purpose of the article was to study the effect of castor oil hydrogenation conditions on the process rate, the composition of the hydrogenate and the selection of optimal conditions assuring hydroxy acid conservation. Experiments were conducted in an autoclave with a 5 l. load of castor oil with mechanical stirring (1500 rpm) in the presence of a powdered skeleton metallic catalyst containing 68.8 percent (by weight) nickel. The raw material used was grade I refined castor oil and commercial hydrogen with 1/2

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MASKAYEV, A. K., et al, Khimiya i Tekhnologiya Toplivo i Masel, No 2, 1971, pp 21-24

a purity of 99.5 percent by volume. After the catalyst was filtered out, the iodine numbers and fatty acid composition of the samples were determined.

It was found that the conditions assuring maximum (98.5 percent) conversion of ricinoleic acid into 12-HSA are: temperature 130°C, quantity of catalyst at least 2 percent by weight, hydrogen pressure 10-15 atm. In order to conserve hydroxy acids, the castor oil hydrogenation process should not be permitted to go to an iodine number below 5. The Soviet oil and fats industry produces various grades of castor oil differing in purification efficiency. A study of the hydrogenation rate showed that the higher the purification efficiency, the higher the process rate. However, medicinal castor oil cannot be recommended because of its short supply and high cost. The isolation of fatty acids from hydrogenated castor oil presents no difficulties. Using the described technique, VNIIPKneftekhim has for the first time in the USSR organized the pilot production of 12-HSA and new types of 12-HSA-based plastic lubricants possessing high operating properties.

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USSR

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YAKUSHA, G. B., BARATOV, E. I. MAN'KOVSKIY, A. I., KHMELEVSKIY, YE. I.

"Procedural Problems of Forecasting the Development of Regional Power Engineering to the Year 2000"

Vopr. metodol. regional'n. ekon. prognozir. (Problems of Procedural Regional Economic Forecasting), Novosibirsk, 1970, pp 207-221 (from RZh-Teploenergetika, No 2, Feb 71, Abstract No 2G1)

Translation: Research in predicting the development of power engineering in the USSR to the year 2000 should include the prospects for development of power engineering of individual republics or economic regions. The forecasting procedure used for the USSR is to a great extent inapplicable for individual economic regions. Forecasting such complex economic phenomena as the development of branches of the national economy, in particular, power engineering, requires the use of a set of forecasting methods -- normative, expert estimates, simulation, extrapolation, and so on. The development of the forecasts to the year 2000 requires careful preparation of the initial base. The statistical series of the base period must be highly representative with respect to the forecasted period. As the base it is expedient to take statistical series for the postwar years (approximately from 1950). The level and nature of

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